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NEW SPECIES OF COLLETOTRICHUM AND PHOMA

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A NEW SPECIES OF COLLETOTRICHUM ON CLOVER

During the course of my investigations in the Salt Lake Valley, I have found many clover fields in which the stems and petioles of red clover (*Trifolium pratense* L.) and alsike clover (*Trifolium hybridum* L.) were infected with a *Colletotrichum* which does not agree in its characteristics with *Colletotrichum Trifolii* Bain. However, in many respects the characters of the disease are similar to those of *Colletotrichum Trifolii* as described by Bain and Essary.¹

The clover plants seem to be most frequently attacked at or near the ground, although it has been noted that the attack may also occur just beneath a cluster of blossoms. As a rule, one's attention is called to the sudden dying of a cluster of blossoms. The petioles and stipules are also attacked.

Specimens of diseased plants were sent to Mrs. F. W. Patterson, mycologist of the U. S. Department of Agriculture, at Washington, D. C., and also to Professor S. M. Bain of the University of Tennessee. Reports from both sources indicate that the disease of red clover and alsike clover as found in the Salt Lake Valley is not caused by *Colletotrichum Trifolii* but by a heretofore undescribed species. A more complete statement of the characteristics of the disease will be made at a later date. The description follows:

Colletotrichum destructivum sp. nov.

Maculis indeterminatis brunneis; *acervulis* minutis 25-70 μ diam., sparsis v. gregariis, erumpentibus, elevatis; *mycelio* hyalino, granuloso; *basidiis* fasciculatis, hyalinis, cylindraceis v. fusoides, conidiis prope aequalibus; *conidiis* hyalinis, granulosis, 1-4 guttulatis, rectis v. leniter curvulis, utrinque rotundatis 3.5-

¹ S. M. Bain and S. H. Essary. A new anthracnose of alfalfa and red clover. Jour. Myc. 12: 192. 1906.

$5 \times 14-22 \mu$; *setulis* inter conidia orientibus, paucis v. numerosis, fuligineis v. atro-brunneis, subrectis v. curvulis v. flexuosis, saepe nodulosis, continuis v. obscure 1-septatis, subacutis v. rotundatis, sursum angustioribus, basi $4.5-7 \mu$ crassis, $38-205 \mu$ longis.

Hab. in foliis, petiolis caulibusque vivis et languidis Trifolii pratensis, Utah, Amer. bor.

A NEW SPECIES OF COLLETOTRICHUM ON POTATO

A new species of *Colletotrichum* which confines its attacks mostly to the underground stems of the potato has been found in many potato fields in the Salt Lake Valley, Utah. Rarely is this new species found on the stems above the surface of the ground. Sometimes definite, dark-brown or black cankers are produced resembling to some extent those caused by *Rhizoctonia*, but more often the entire underground stem is involved. The mycelium invades the cortex beneath the epidermis and is at first hyaline and few-septate. Later, the mycelium becomes brown and many-celled, and forms sclerotia-like bodies just beneath the epidermis from which arise the setae and conidiophores. When the stems die, the epidermis readily comes off, exposing the dark-brown or black sclerotia-like bodies. The fungus has been cultivated in the laboratory for some time, and reproduces characteristically. It is related to *Vermicularia*.

Colletotrichum solanicolum sp. nov.

Maculis plus minusve indeterminatis atro-brunneis vel nigris, plerumque in caulibus subterraneis, saepe totum partem cauli subteranii occupantibus; *acervulis* numerosis, irregulariter sparsis vel subgregariis, primo epidermide tectis, demum erumpentibus; *mycelio* in cellulis corticis primo hyalino et parce septato, deinde brunneo, pluriseptato, sclerotioideo, conidia setasque gerente; *setis* fasciculatis, numerosis, atro-brunneis, ad apicem saepe pallidioribus, rectis, vel leniter curvulatis vel flexuosis, apice obtusis vel acutis, 1-3 septatis, $90-260 \mu$ longis, cellula inferiore leniter inflatis, $6-7 \mu$ crassis; *conidiophoris* inter setulis orientibus, subhyalinis, granulosis, brevibus, $2-8 \mu$ longis; *conidiis* continuis, $3.5-5 \times 17-22 \mu$, rectis vel leniter curvulatis, apice rotundatis, ad basim leniter attenuatis, hyalinis, granulosis, saepe 1-3 guttulatis. maturescentibus vacuolum leniter refringens medio continentibus.

Hab. in caulibus subterraneis vivis et emortuis *Solani tuberosi*, Salt Lake Valley, Utah, Amer. bor.

A NEW SPECIES OF COLLETOTRICHUM ON ASCLEPIAS

My attention was called to an interesting anthracnose of *Asclepias speciosa* by Mr. W. W. Jones, botanist in the laboratory of plant pathology, department of agricultural investigations, American Smelting and Refining Company. Upon careful study of the disease, it was found that a new species of *Colletotrichum*, more or less intermediate between *Gloeosporium* and *Colletotrichum*, proved to be the causative agent. It is interesting to note that this new species of *Colletotrichum* produces very few setae; very often they are entirely wanting. The fungus attacks both the foliage and the stems, producing characteristic irregular spots on the foliage and most often a complete girdling of the stems near the base. The spots on the stems when not confluent are more or less elliptical. The conidial masses on both foliage and stems are distinctly salmon-colored in fresh specimens. Diseased plants are easily noted by the premature yellowing of the foliage.

A more complete description will be presented later when the cultural work has been completed. The description of the species is as follows:

***Colletotrichum salmonicolor* sp. nov.**

Maculis in caulibus et foliis, brunneis, atro-brunneo-marginatis. *Maculis* in foliis amphigenis, irregularibus, leniter depressis, 2–6 mil. diam., saepe confluentibus. *Maculis* in caulibus, lenticulatis, saepe confluentibus, initio leniter depressis, deinde elevatis, 2–7 mil. long. *Acervulis* amphigenis, sed in hypophyllo copiosioribus, minutis, numerosis, irregularibus, elevatis, dense aggregatis interdum confluentibus, initio epidermide velatis, dein erumpentibus, massa conidiorum salmonicoloratis erumpente; *conidiis* subhyalinis, granulosis, 2–4 guttulatis, irregularibus, rectis vel levissime curvatis, saepe ad basim leviter attenuatis et summo rotundatis, $5-6 \times 17.5-35 \mu$; *basidiis* hyalinis, granulosis, conidio subaequilongis; *mycelio* parce vel non septato; *setulis* erectis, sparsis, paucis, saepe nullis, superne acutis 1.5μ crassis, inferne 9μ crassis, 2–3 septatis et $75-105 \mu$ longis, rectis vel leniter curvulatis, saepe nodulosis, atro-fuligineis vel brunneis, cellula inferiori subhyalina.

Hab. in caulibus et foliis vivis et languescensibus *Asclepiadis speciosae*, Salt Lake Valley, Utah, Amer. bor.

A NEW SPECIES OF PHOMA ON ASCLEPIAS

Upon examining some mycological collections made by W. W. Jones of this department during the past season in the Salt Lake Valley, Utah, I found an interesting *Phoma* on the stems and foliage of *Asclepias speciosa* Torr. The examination of many specimens showed that in every instance it was associated with *Cercospora clavata* (Ger.) Peck. The leaf and stem spots always showed the presence of both the *Phoma* and *Cercospora*. In some cases definite areas of the spots were covered by both species, but often the pycnidia of the *Phoma* and the acervuli of the *Cercospora* are intermingled. Where definite areas of the spots are covered by the two species, it is easy to recognize one from the other by noting the lighter-colored brown areas of the *Cercospora* as contrasted with the dark-brown or black-colored areas occupied by the *Phoma*. Carefully prepared microtome sections show the intermingling of the mycelium of both species. In the *Phoma* leaf-spots, practically the entire structure between the upper and lower epidermis is destroyed, and the space occupied by the light-brown mycelium. Pycnidia are often distinctly beaked. The description of this species is as follows:

***Phoma rostrata* sp. nov.**

Maculis in caulibus lenticulatis vel elongatis; in foliis amphigenis irregularibus, nervulis limitatis, atro-brunneis vel nigris; *peritheciis* sparsis vel dense gregariis, brunneis vel atro-brunneis, semi-immersis, globosis, prominulis vel rostratis, 56–95 μ diam.; *mycelio* in cellulis hospitis brunneo, ramoso, pluriseptato, hyphis circa 3 μ diam.; *sporulis* 1.4–2.3 \times 4–6 μ , eguttulatis, oblongis, utrinque rotundatis, plerumque leniter curvulatis; basidiis non vivis.

Hab. in foliis et caulibus vivis et languidis *Asclepiadis speciosae*, cum *Cercospora clavata* in eisdem maculis sociata, Salt Lake Valley, Utah, Amer. bor.

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